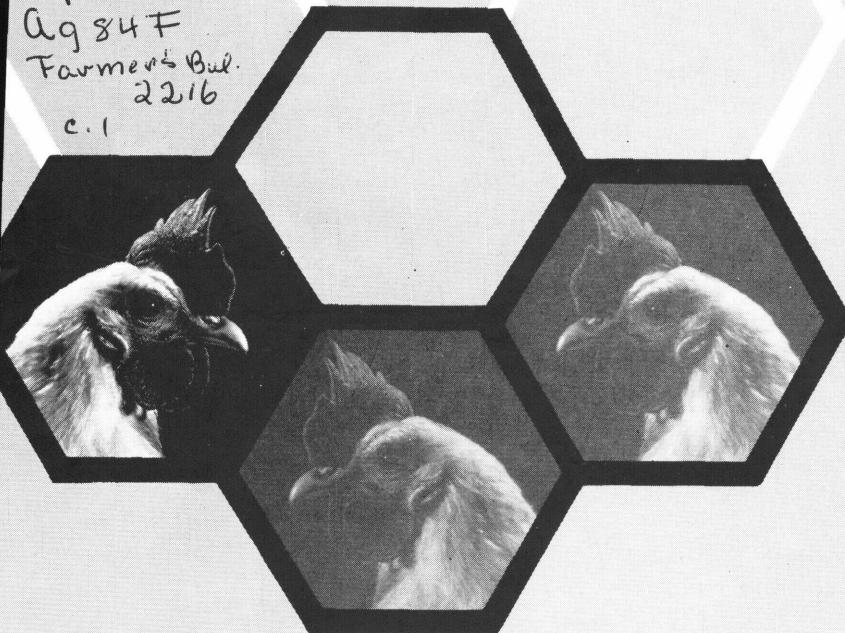


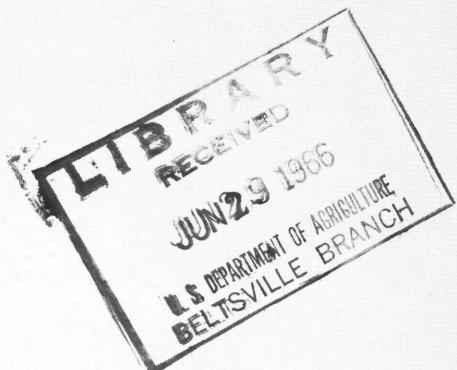
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CULLING HENS



Attitudes toward culling have changed as American laying flocks have increased in size.

In many commercial high-egg-production flocks, extensive culling is no longer practiced. Because only healthy and well-developed birds are placed in commercial laying houses, these flocks normally contain a very small number of poor layers. It is not practical to disturb high producers and reduce egg production just to identify a few culled.

On the other hand, proper culling can increase efficiency of egg production in most farm flocks. The poorer the flock, the greater the need to cull.

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CULLING HENS

When you cull hens, you identify and remove nonlaying and low-producing birds from your flock. These birds, unless diseased, are suitable for home consumption or marketing. By removing them you—

- Keep the egg-production rate of the flock high.
- Save the cost of feeding unproductive birds. Hens eat about 7 pounds of feed per month whether laying or not.

- Reduce the spread of disease from hens to young birds.
- Provide more space for the remaining birds.

Culling is particularly valuable if you keep hens for a second year of egg production. If hens are properly culled, the ones remaining at the end of the first laying season are the highest producers. The healthy, vigorous, fast-molting hens in this group will be the most desirable second-year layers.

GUIDES TO CULLING

Whenever you locate unproductive birds in the laying flock, cull them.

When you cull during the period of peak production (generally the first 6 months after production begins), cull by flock inspection to remove all diseased, injured, or unthrifty birds.

When you cull after the peak period of production, cull by individual inspection to identify and remove unthrifty birds and low producers.

It is a good idea to cull at night. Culling when it is dark is less likely to frighten hens than culling when there is light. Use a flashlight to identify poor layers on the roost at night. A flashlight that produces a blue light is preferable.

If you cull when there is light in the house, you may want to use one of the following:

- A net.
- A catching hook—if you want to catch only a few birds. Handle it carefully; an improperly used hook may injure a bird's leg. Because layers become progressively more frightened by the struggles of each additional bird that is caught, a hook is not satisfactory for catching more than a few birds at one time.
- A catching crate or a hurdle—if you are going to examine large numbers of birds. Confine the flock to the house and drive birds through a runway exit into the crate or hurdle as quietly as possible.

EGG-LAYING INDICATORS

In individual culling, consider the general appearance and health of the hen, as well as the following specific egg-laying indicators:

- **Body condition.** From the general body condition, determine whether a bird is currently laying eggs.

- **Bleaching of yellow pigment.** From the color of the skin and beak, determine how long a layer has been in production.

- **Molting.** From the number and length of molting feathers, de-

termine how long a nonlayer has been out of production; from the beginning of molting and elapsed time, determine what kind of a layer she has been.

Body Condition

You can separate layers from non-layers by looking at the general body condition—changes in appearance, size, or shape of comb, wattles, vent, pubic bones, and abdomen.



18833-B, 18832-B
Pubic bones of a nonlayer (left) are close together; pubic bones of a layer (right) are wide apart.

Comb and wattles

When a hen is not laying, her comb and wattles are dull, dry, and shriveled.

A laying hen has a large, smooth, bright-red comb and full, smooth wattles. When laying ceases, the comb and wattles shrivel again.

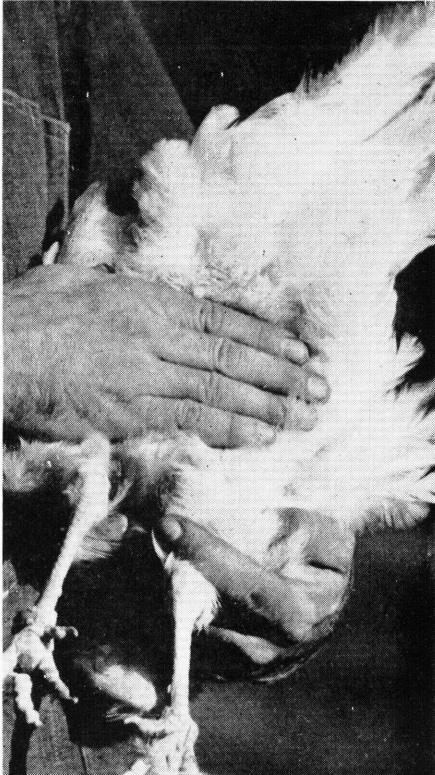
Vent

The nonlayer's vent is shrunken, puckered, dry, and round. It has a yellowish color. As a pullet begins to lay, the vent enlarges and becomes oval shaped. A good layer has a smooth, moist, almost white vent. (See p. 5.)

Pubic bones

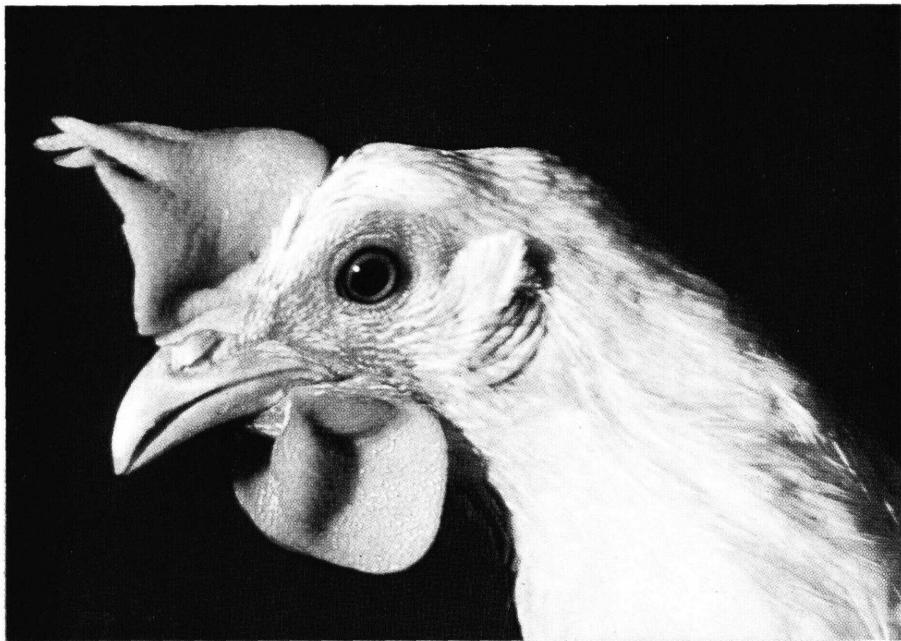
The two small bones at the sides of the vent are the pubic bones. In nonlayers pubic bones are thick and stiff, because fat accumulates around the bones during nonproduction. The pubic bones are close together when a hen is not laying. The distance between them is 1 fingerwidth or less (a fingerwidth—or finger>equals $\frac{3}{4}$ inch).

These bones spread apart when egg laying begins. Fat gradually disappears and the pubic bones become thin and pliable during continuous production. In a layer, pubic bones are at least 2 fingerwidths apart. (See p. 2.)



18831-B, 18830-B

Pubic bones and keel of a nonlayer (left) are close together; pubic bones and keel of a layer (right) are wide apart.



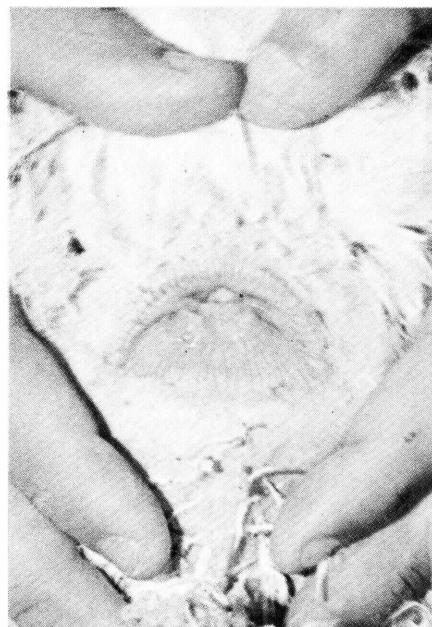
Mature pullet that has not started to lay; beak is fully colored.



Pullet that has been in production for 6 weeks; almost all the color has bleached from the beak.



When hen stops laying, beak color returns; comb, wattles shrink.



Vent of a nonlayer (left) is small, puckered, round. Vent of a good layer (right) is large, smooth, oval.

Abdomen

The size of the abdomen, except in an excessively fat hen, is a good indication of laying.

The abdomen of a nonlayer is hard and contracted: the skin feels coarse and thick. The abdomen of a layer feels soft and pliable.

Pullets and nonlaying hens have a depth of about 2 fingerwidths between the pubic bones and the keel. Laying hens have a depth of about 4 fingerwidths. (See p. 3.)

Bleaching of Pigment

As birds produce eggs over a long period, their bodies bleach, or lose yellow pigment from skin and beak.

Bleaching is readily seen in yellow-skinned breeds and in birds that are fed a yellow-pigmented diet. In white-skinned birds or those fed a diet low in yellow pigment, bleaching is difficult to detect.

Hens that have lost pigment are usually—but not always—high producers. Unthrifty and diseased birds that are not laying sometimes may be bleached. Therefore, bleaching must be considered in relation to other culling guides in selecting unproductive birds.

Bleaching of a hen's body begins at the same time egg production begins. The yellow pigment is diverted from the skin to egg yolks. The amount of bleaching is determined by the length of time the supply of pigment has been diverted.

The different parts of the hen's body bleach in regular order—the vent, the eye ring, the ear lobe, the beak, and the shanks.

Vent

The first and most rapid change occurs in the color of the skin around the edges of the vent. When a yellow-skinned pullet be-

gins to lay, the color fades from the vent and disappears in a few days.

A yellow vent shows that a hen is not laying, and a white, pink, or bluish-white vent indicates that a hen is laying. The bluish-white vent indicates long-term production.

Eye ring and ear lobe

The eye ring starts to bleach soon after the vent. Usually it is completely bleached in 2 to 3 weeks after the hen begins laying.

The ear lobe loses its yellow pigment in 3 to 4 weeks. In Leghorn varieties, a bleached ear lobe indicates longer production than a bleached vent or eye ring.

Beak

The color of the beak fades from the base to the tip. In most high-producing breeds, a nonlayer's beak is yellow. As a bird begins to lay, her beak loses color from the base. It takes about 6 weeks of continuous egg production for a beak to bleach almost white. (See p. 4.)

The lower beak bleaches more rapidly than the upper. Bleaching of the lower beak can be used as a basis for culling when the upper beak contains dark brown or black pigment. This dark pigment is frequent in Barred Plymouth Rocks and Rhode Island Reds.

Shanks

Bleaching of the shanks is a good indication of long-time production, because it occurs more slowly than bleaching of the beak.

The color recedes first from the lower edge of the scales on the front of the shank. The rear of the shank gradually bleaches with continued production until little pigment is left except in the scales of the hock joint. Continuous egg production for 2 to 5 months is

required to bleach the shanks completely.

Pigment returns

When a hen stops laying, the yellow color comes back. The speed of return depends on the kind of feed she gets; large quantities of green feed and yellow corn in the mash-and-grain ration will restore yellow color quickly. Pigment returns to the hen's body in the same order as it bleaches—in the vent first and the shanks last.

In the beak, the color first reappears at the base. As the hen remains out of production, the returning pigment moves across the beak until it reaches the tip and the whole beak is again a normal yellow. (See p. 5.)

During long periods of broodiness when a hen is not laying, the color returns to the skin and beak.

Bleaching variations

Breeding, environment, feed, health, and individuality of birds cause differences in the density of yellow color.

Shanks and beak of a yellow-skinned hen may vary from deep orange-yellow to creamy white.

In addition to high egg production, bleached shanks may result from low vitality, parasites, disease, or rundown condition.

Molting

When a hen molts, she loses her old feathers and grows new ones. Egg production normally stops as molting starts. During this period, the hen first sheds head and neck feathers. In a general molt, she then loses the feathers—in order—from the breast, body, wing, and tail.

The date and length of the molt are important guides for finding low producers.

A flock undergoes an annual molt about the close of the laying year. The time of molting depends somewhat on the season in which birds were hatched. Some high-producing hens do not lose all body or wing feathers in the first-year molt.

Generally, early molters are low producers. They do not resume production for 4 to 6 months.

In contrast, birds that molt late in the fall usually are high producers. After a rest of only 2 to 3 months, they begin to lay again.

You can estimate when a non-layer began to molt after checking the number, size, and condition of the primary wing feathers.

The primaries are the large, stiff flight feathers on the outer part of the wing when the wing is spread.

There usually are 10 primary feathers in each wing. A short axial feather grows at the wing joint and separates the primaries from the secondaries. (See p. 8.)

The secondary feathers also are large and stiff, but they are on the inner part of the wing and close to the body of the bird when the wing is folded.

Molting birds drop the primary feathers in regular order, beginning with the primary next to the axial and moving outward. The feather farthest from the axial is the last primary to be renewed.

There are great variations in molting. Individual hens differ in the number of replacement feathers that appear at different stages of molt and in the time the feathers develop.

Normally, a replacement feather begins to grow as soon as a primary is shed. A new feather reaches two-thirds of its full length in 3 weeks and completes its growth in 6 weeks. The growth rate of new primaries is the same for early and late molters.

An early molter loses one primary every 2 weeks. She may

require 4 to 6 months to renew all her primary feathers and resume laying.

A late molter drops 2 or 3 feathers at the same time—often at weekly intervals. She may resume laying in 2 or 3 months, before new feathers are fully grown.

webs of new feathers are glossy and bright; quills are large, full, and soft. In contrast, old feathers of a layer are worn and soiled; webs are dry and frayed; quills are small, hard, and almost transparent.

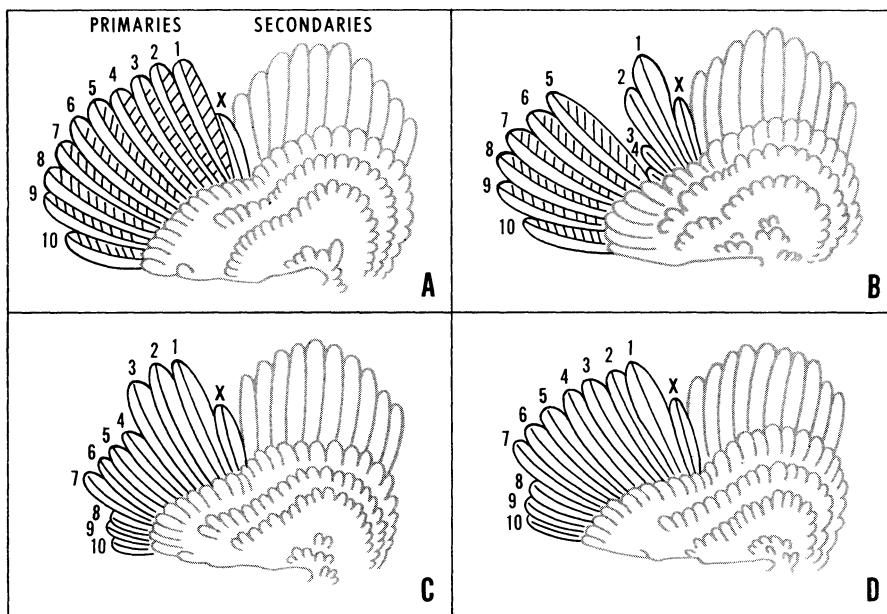
After molting is completed, it is difficult to distinguish slow molters from hens that molted quickly by examining the feathers.

Estimating length of molt

To estimate the time since the molt began, allow 6 weeks for the first mature new primary feather and 2 weeks for each additional full-grown one.

If primaries are not fully grown, calculate the time of the molt on the present growth. A primary reaches half of its full length at 2 weeks and two-thirds of its length at 3 weeks.

Consider all new feathers of the same length as one group in calculating the time molting began. High-producing, late-molting birds grow feathers in groups of 2 or 3.



- A. Normal wing showing primary feathers (1 to 10), axial feather (x), and secondary feathers (right).
- B. Wing of a slow molter at 6 weeks. Primary feather 1 is fully grown. Feather 2 is 4 weeks old, 3 is 2 weeks old, and 4 has just appeared. Other primaries have not been dropped.
- C. Wing of a fast molter at 6 weeks. All primaries have been dropped. Feathers 1 to 3 are fully grown; 4 to 7 (which were dropped in a group) are 4 weeks old; 8 to 10 are 2 weeks old.
- D. Wing of a fast molter at 8 weeks. Feathers 1 to 7 are fully grown; 8 to 10 are two-thirds grown. Hen completed molt at 10 weeks.

Health and management

Health and management can alter a hen's molting pattern. If a hen loses weight rapidly, she may stop laying and molt earlier than usual.

Diseases and changes in feed and housing can lower body weight and bring premature molting. Lack of water also may cause a molt.

Premature molting often can be avoided by maintaining body weight, by preventing stress conditions, and by using artificial lights in the poultry house. Feeding pellets, crumbles, or wet mash to stimulate birds' lagging appetites in early fall also helps to maintain egg production. Pellets and crumbles have largely replaced wet mash.

Partial molt

After a short period of production, early-hatched or early-matur-

ing pullets sometimes have a partial molt in the fall or early winter of the year in which they were hatched. Egg production drops, then returns to normal after 6 to 8 weeks. Neck and tail feathers and one or two primaries may be shed during this molt.

Partial molt often is difficult to check. If your pullets undergo partial molt, note their hatching date. Pullets hatched in April or later seldom undergo partial molt.

Broody hens

When hens become broody, they usually stop laying for 2 or 3 weeks. They sit on the nest for long periods; they eat little.

Broodiness can be stopped by putting the hen in a wire-floored cage, supplied with feed and water. Because the wire floor prevents sitting or nesting, the hen is forced to be active. When she resumes laying, return her to the flock.

For further information about farm poultry flocks, consult—

- Your county agricultural agent.
- Your State Extension Service poultry specialist.
- The poultry staff of your State agricultural college.
- Your State poultry disease diagnostic laboratory.
- Service men for contract flocks.
- Feed dealers.
- Your State department of agriculture.
- The U.S. Department of Agriculture, Washington, D.C., 20250.
- Weekly and monthly periodicals about poultry.

CULLING CHART

Separating layers and nonlayers

Character	Layer	Nonlayer
Comb	Large, smooth, bright red, glossy	Dull, dry, shriveled, scaly.
Face	Bright red	Yellowish tint.
Vent	Large, smooth, moist ..	Shrunken, puckered, dry.
Pubic bones	Thin, pliable, spread apart	Blunt, rigid, close together.
Abdomen	Full, soft, pliable	Contracted, hard, fleshy.
Skin	Soft, loose	Thick, underlaid with fat.

Separating high and low producers

Character	High producer (continuous laying)	Low producer (brief laying)
Vent	Bluish white	Yellow or flesh color.
Eye ring	White	Yellow.
Ear lobe	White	Yellow.
Beak	White	Yellow.
Shanks	White, flattened	Yellow, round.
Plumage	Worn, soiled	Not much worn.
Molting	Late, rapid	Early, slow.

Characteristics of desirable producers

Time of maturity	Leghorns begin to lay at 5 to 5½ months; Rhode Island Reds, Plymouth Rocks, and similar breeds, at 5 to 6½ months.
Rate of production	Hens lay at least 220 eggs a year.
Broodiness	Birds are seldom broody.
Persistence of production ..	Good producers lay consistently for 12 to 15 months.